



INTERNATIONAL
TECHNOLOGY
CORPORATION

IT CORPORATION

STANDARD OPERATING PROCEDURE

NUMBER: RPP-008

TITLE: Engineered Controls and Respiratory Protection

APPROVED: [Signature]

Corporate Director of
Health and Safety

DATE: 9-27-96

APPROVED: [Signature]

Health Physics Professional

DATE: 9/23/96

APPROVED: [Signature]

Corporate Director of
Quality Assurance

DATE: 26 Sep 96

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ENGINEERING CONTROLS AND RESPIRATORY PROTECTION

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<p>It is the IT policy that respiratory protection shall only be used when engineered controls have been used to the extent possible or while engineered controls are being implemented.</p>		
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1 PURPOSE AND OBJECTIVES

The purpose of this procedure is to describe the use of engineered controls for the control of airborne radioactive contaminants and describe the respiratory protection program. This procedure is applicable to all IT work activities which are in the vicinity of or involve radioactive materials or contaminated equipment and/or facilities where there exists a potential for the radioactive material to become airborne.

2 RESPONSIBILITIES

2.1 Corporate Director of Health and Safety (Director):

- 2.1.1 Ensures that the requirements of this RPP are implemented at all IT fixed facilities or job sites.
- 2.1.2 Ensures that an internal training program on use of engineered controls to reduce worker exposure to airborne contaminants is given to all RSOs, SSOs, and other technical safety staff personnel who have or may have oversight of job sites where radioactive materials are present.

2.2 Health Physics Professional (HPP):

- 2.2.1 Provide guidance and information on engineered controls for suppression of airborne contaminants to RSOs or SSOs when needed.

2.3 Radiation Safety Officer (RSO):

- 2.3.1 In conjunction with project managers or fixed facility managers, develop appropriate engineered controls for the suppression of radioactive airborne contaminants.
- 2.3.2 Implement and administer the respiratory protection program described in this RPP.
- 2.3.3 Approves all Health and Safety Plans (HASPs), Work Plans (WPs), and Proposals involving potential airborne radioactive exposure to workers.

2.4 Project Managers and Fixed Facility Managers

- 2.4.1 In conjunction with the RSO, assigns project personnel and/or contractors to assist in the design and implementation of engineered controls for suppression of radioactive airborne contaminants.
- 2.4.2 Approves all HASPs, WPs, and Proposals involving potential airborne radioactive exposure to workers.



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3 REFERENCES

3.1 Requirements and Specifications

- 3.1.1 IT Corporation Policy No. HS-700, "Radiation Protection Program Plan"
- 3.1.2 Title 10, Code of Federal Regulations, Part 19, "Notices, Instructions and Reports to Workers; Inspections"
- 3.1.3 Title 10, Code of Federal Regulations, Part 20, "Standards for Protection Against Radiation"
- 3.1.4 Title 29, Code of Federal Regulations, Part 1910 Section 120, "Hazardous Waste Operations and Emergency Response"

3.2 Related Procedures

- 3.2.1 IT Corporation Procedure No. RPP-010, "Radiation Protection Records"

3.3 Others

- 3.3.1 ANSI Z88.2-1980, "Practices for Respiratory Protection," March 1981
- 3.3.2 ITC HS 601, "Respiratory Protective Program"

4 DEFINITIONS

- 4.1 Annual - Within 365 days of the last medical review, training, or fit test date.
- 4.2 Radiation Safety Officers (RSO) - Individuals who, by virtue of training and/or experience, have been authorized to develop, administer and implement a radiation protection program. Fixed facility RSOs are specified by federal or state license requirements, and are authorized to use or directly supervise the use of radioactive materials under the specifications of a specific radioactive materials license. Project RSOs shall be IT Technical Associates in Health Physics, or shall be selected by the HPP.
- 4.3 Shall - The word shall is to be understood as a requirement.
- 4.4 Should - The word should is to be understood as a recommendation.
- 4.5 All other definitions are as described in ANSI Z88.2-1980



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5 EQUIPMENT/MATERIALS REQUIRED

NONE

6 METHODOLOGY

6.1 Engineered Controls:

NOTE: Engineered controls shall be designed and implemented to minimize the potential for the suspension of radioactive materials in air during the normal course of work at all affected fixed facilities and job sites. Implementation of engineered controls is most cost effective when considered at the design or planning stage. Therefore, controls should be reviewed during the design of a fixed facility and when initiating the work plan for a site project. The following items are not all encompassing but represent a portion of available techniques for controlling airborne contaminants.

6.1.1 Containment methods for controlling radioactive materials are as follows:

- A. Use of validation hoods for analytical procedures or cleaning of equipment.
- B. Use of glove boxes when handling quantities of material that have a low allowed derived air concentration (DAC) and the physical form of material and the procedural requirements would potentially result in airborne concentrations that equal or exceed the DAC.
- C. Use of portable or flexible glove boxes when opening systems that are internally contaminated.
- D. Construction of enclosures at job sites that are used to contain work areas such that airborne radioactive materials are restricted from movement into non-contaminated areas.
- E. Keeping lids on containerized radioactive materials such as analytical samples, standards, and drummed waste.

6.1.2 Suppression methods for controlling radioactive materials are as follows:

- A. Use of water to wet down loose radioactive material or material that may easily become airborne such as soils.
- B. Use of EPA approved dust suppression compounds to cover loose surface contamination.

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- C. Use of strippable coatings to cover and fix loose contamination.
- D. Use of high pressure water misting systems to suppress dust generation when performing tasks that normally would result in significant release of contaminants. Tasks such as soil excavation using front end loader/scrapers, dumping loose material into shipping containers, etc.

6.1.3 Removal methods for controlling radioactive materials are as follows:

- A. Equipment/facility decontamination to remove loose surface contaminants.
- B. Use of HEPA filtered ventilation equipment to remove airborne contaminants
- C. Use of ventilation air patterns to minimize the spread of contamination from higher to lower contaminant concentration areas and to assist in the dilution of concentrations by introduction of clean air.

6.2 IT Policy

It is the IT policy that respiratory protection shall only be used to maintain employee exposures below applicable limits when engineered controls have been used to the extent possible or in conjunction with engineered controls to maintain exposures ALARA.

6.3 Respirator User Qualifications

6.3.1 An individual shall meet the following conditions prior to wearing a respirator.

- Medically reviewed
- Trained (annual)
- Fit Tested
- Clean shaven

6.3.2 Respirator users shall have a "respirator card" or equivalent issued by a qualified instructor that shows their fit test date, and respirator types and sizes which the user is qualified to wear.

6.3.3 A user's qualifications to wear respiratory protection are invalid when his medical review, training, or fit test are over one year old.

6.3.4 A user shall only wear the size and type of respiratory protection for which they are qualified.



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6.4 Respirator User Medical Qualifications

An individual shall meet the medical requirements of IT Standard Procedure ITC HS 601, "Respiratory Protection Program."

6.5 Respirator User Training Qualifications

6.5.1 Prior to wearing respiratory protection in the field, an individual shall be trained as described below.

6.5.2 Basic and annual training shall include the following:

- A. Reasons for the need of respiratory protection, including regulatory requirements,
- B. Nature, extent, and effects of airborne hazards,
- C. Review of engineering controls,
- D. Selection of respirator types and limitations,
- E. Inspection, donning, fit testing, and wearing of respiratory devices, including the requirement that no facial hair or other impediment interfere with the sealing surface,
- F. Recognition and coping with emergency situations, and
- G. Hands on inspection, wearing of, and field fit testing.

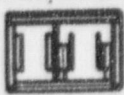
6.5.3 Supervisors of respirator users shall be trained in accordance with sub-section 6.5.2.

6.6 Respirator Fit Testing

6.6.1 An individual shall receive a fit test prior to wearing respiratory protection in a non-training situation.

6.6.2 Fit testing and frequency will be consistent with that required in IT Standard Procedure ITC HS 601, "Respiratory Protection Program."

NOTE: Fit tests may also be required after any significant change in face structure or size (e.g., severe weight loss, facial scarring, injury).



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6.6.3 A negative and positive pressure test shall be completed for each negative pressure APR prior to each use of the respirator in the field.

6.7 Respirator Use

6.7.1 Prior to use in the field, the user shall perform the following:

- A. Inspect the respirator,
- B. Install only those filtering devices authorized by the work release or the RSO,
- C. Negative and positive pressure test.

6.7.2 Respirator wear times should normally not exceed four hours in duration without a break.

6.7.3 A user shall leave the work area for any of the following reasons:

- Malfunction of the respirator
- Detection of leakage (i.e., breakthrough)
- Increased resistance to breathing
- Severe discomfort
- Illness of the user
- Procedural or communications failure
- Significant deterioration of operating conditions.

6.7.4 Respirators shall be cleaned and inspected prior to reuse.

6.7.5 Air-purifying respirators shall be used only when contaminants have been identified and concentrations are within the protection factors assigned to the respirator.

6.7.6 Air-purifying respirators shall not be used in oxygen-deficient atmospheres.

6.7.7 After use, the user shall follow the facility or job site specific instructions for handling of used respirators. Normally the respirator should be bagged and returned it to the issuer.

6.8 Waivers and Special Conditions

6.8.1 The RSO may extend respirator medical, training, and fits test qualifications by up to 30 days past their expiration date. These waivers shall be documented by memoranda.



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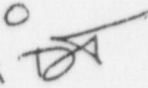
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6.8.2 In the IT Respiratory Protection Program, dust masks are not considered respiratory equipment. However, dust masks may be used by workers upon request. Any dose assessment performed on an individual who wore a dust mask shall not take any protection factor credit for the dust mask.

7 RECORDS

7.1 All Records pertinent to this procedure shall be maintained pursuant to RPP-015. ⁰¹⁰ 

7.2 Respirator Issue Logs shall be maintained in Project Files.

8.0 ATTACHMENTS

NONE